# YAKEEN-2022

Kinematics – [DPP-01]

1. The ratio of displacement to distance is
(A) Always = 1
(B) Always < 1
(C) Always 1
(D) May be 1

2. Consider the motion of the tip of the minute hand of a clock. In one hour
(A) The displacement is non-zero
(B) The distance covered is zero
(C) The average speed is zero
(D) The average velocity is zero

3. Which of the following statement is not true?
(A) If displacement covered of a particle is zero, then distance covered may or may not be zero
(B) If the distance covered is zero then the displacement must be zero
(C) The numerical value of ratio of displacement to distance is equal to or less than one
(D) The numerical value of the ratio of velocity to speed is always less than one

4. A boy completes one round of a circular track of radius 20 m in 50 seconds. The displacement at the end of 4 minute 10 second will be
(A) 40 m
(B) 20 m
(C) 80 π m
(D) Zero

5. A body moves 6 m north, 8 m east and 10 m vertically upwards, what is its resultant displacement from initial position :
(A) $10\sqrt{2}$ m
(B) 10 m
(C) $10/\sqrt{2}$ m
(D) 10×2 m

6. A car moves from O to D along the path OABCD shown in figure. What is distance travelled and net displacement.
(A) 16, 5
(B) 17, 5
(C) 20, 4
(D) 15, 3

7. A particle starts from the origin, goes along the X-axis to the point (20 m, 0) and then returns along the same line to the point (–20m, 0). Find the distance and displacement of the particle during the trip.
(A) 60, –20
(B) –60, 20
(C) 60, 20
(D) None of these

8. A person moves on a semicircular track of radius 40 m. If he starts at one end of the track and reaches the other end, find the magnitude of displacement of the person.
(A) 40 m
(B) 50 m
(C) 80 m
(D) 60 m

9. Two resistors R_1 (24 ± 0.5) Ω and R_2 (8 ± 0.3) Ω are joined in series. The equivalent resistance is
(A) 32 ± 0.33 Ω
(B) 32 ± 0.8 Ω
(C) 32 ± 0.2 Ω
(D) 32 ± 0.5 Ω

10. A quantity is represented by $X = M^a L^b T^c$. The percentage error in measurement of M, L and T are α%, β% and γ% respectively. The percentage error in X would be
(A) $(\alpha a + \beta b + \gamma c)\%$
(B) $(\alpha a - \beta b + \gamma c)\%$
(C) $(\alpha a - \beta b - \gamma c)\%$
(D) None of these
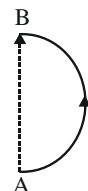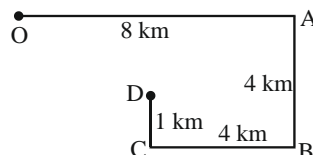
11. True value of length of a wooden stick is 38.762 cm. Its length is measured by using two different instruments of different least count. Measurement results are 38.763 cm and 38.76 cm respectively. Which of the following option is coned?

(A) 38.76 cm is more accurate and less precise

(B) 38.763 cm is more accurate and more precise

(C) 38.763 cm is more accurate and less precise

(D) 38.76 cm is less accurate and more precise

12. The resistance is $R = V/I$ where $V = 100 \pm 5$ volts and $I = 10 \pm 0.2$ amperes. What is the total error in R ?

(A) 5%   (B) 7%

(C) 5.2%   (D) (5/2)%

13. If error in measuring diameter of a circle is 4%, the error in circumference of the circle would be

(A) 2%   (B) 8%

(C) 4%   (D) 1%

14. The external and internal radius of a hollow cylinder are measured to be (4.23 ± 0.01) cm and (3.89 ± 0.01) cm. The thickness of the wall of the cylinder is-

(A) (0.34 ± 0.02) cm

(B) (0.17 ± 0.02) cm

(C) (0.17 ± 0.01) cm

(D) (0.34 ± 0.01) cm

15. A vernier callipers has 20 divisions on the vernier scale which coincide with 19 divisions on the main scale. The least count of the instrument is 0.1 mm. The main scale divisions are of-

(A) 0.5 mm   (B) 1 mm

(C) 2 mm   (D) 1/4 mm

ANSWERS KEY

1. (D)
2. (D)
3. (D)
4. (D)
5. (A)
6. (B)
7. (A)
8. (C)
9. (B)
10. (A)
11. (B)
12. (B)
13. (C)
14. (A)
15. (C)

Note – If you have any query/issue

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